

MENTAL OVERSTRAIN IN EDUCATION.

BY

G. E. SHUTTLEWORTH, B.A., M.D., &c.

PRESIDENT THAMES VALLEY BRANCH, BRITISH MEDICAL ASSOCIATION.
FORMERLY MEDICAL SUPERINTENDENT OF THE ROYAL
ALBERT ASYLUM, LANCASTER.

With the writer's compliments

MENTAL OVERSTRAIN IN EDUCATION.

IN venturing to make a few remarks upon a somewhat trite subject I must plead as justification the fact that, notwithstanding much that has been said and written in the way of warning by men more experienced than myself, there still exist indications of a tendency to mental overstrain in certain departments of education. In the consideration of the subject it may be well to clear the ground by discussing the questions (1) What is education? and (2) What is meant by educational over-pressure, or such pressure in education as is likely to result in mental overstrain? and (3) finally, to inquire into the incidence, the etiology, and the signs of such over-pressure. A few words may follow as regards prevention and treatment.

To answer the question, What is education? it may be useful to consider what it is not. With some so-called educationalists I fear the idea still lingers that it consists in cramming a mind with as much of as many subjects as possible. Our laughing philosopher *Mr. Punch* has, however, very truly observed that "you cannot ladle grammar, arithmetic, and geography into a child's brain as you would brimstone and treacle into his stomach"; indeed, a smattering of philology will serve to show that the word "education" means not "putting in" but "drawing out." And, bearing in mind the physiological interdependence of bodily and mental development, we may say that true education consists in processes of training which will produce in a given individual the most favourable evolution possible of all the faculties both of body and mind. A rational educational system will of course recognise the fact that children are not cast in the same mould, that there are inherent—often inherited—differences in each pupil's powers, and that to attain the best results instruction must be adapted to idiosyncrasies and proportioned to varying capacities. Moreover, the comprehensive and far-reaching character of education must be borne in mind, including as

¹ A paper (taken as) read in the Section of Psychology, British Medical Association annual meeting, July 31st, 1896.

it does—as Paley puts it—“every preparation that is made in our youth for the sequel of our lives.” From the medical standpoint, indeed, we shall reply in the affirmative to the query of Plato, “Is not that the best education which gives to the mind and to the body all the force, all the beauty, and all the perfection of which they are capable?” Over-pressure in education may in brief be described as a neglect of the principles just set forth—a neglect which cannot fail to lead to mental overstrain. Thus a cast-iron code imposing for each year of age a definite standard of acquirement, heedless of the varying capacities of children, could not fail to produce it. A disregard of physical conditions underlying mental evolution and of critical epochs of development (especially in the female sex) affecting capacity for exertion is another efficient cause. And the undue excitation of the unstable nerve cells of a child of neurotic heredity to such a pitch of activity as might be harmless in a normal child will in the case of the former be apt to constitute overstrain. Over-pressure, indeed, is not an absolute quantity, but has to be estimated in relation to the personal factor in each case. It may, therefore, be defined in terms of educational work as that amount which in a given case is likely to produce excessive strain of the physical or mental system, or both.

We pass now to the consideration of its incidence. Since 1870 every young Briton has been compelled to submit to educational processes of some description or other between the ages of five and fourteen. School attendance is, however, allowed to count towards a grant from the early age of three, and in some schools there are what are called “babies’ classes.” Formerly the leading idea with regard to these poor juveniles was that the function of school was to teach them to sit still, regardless of the incessant impulse to movement which characterises all healthy young animals. Charles Kingsley long ago satirised the “foolish fathers and mothers who instead of letting their children pick flowers and make dirt-pies, as little children should, kept them always working, working, working till their brains grew big and their bodies grew small and they were all changed into turnips with little but water inside.” And in days not far distant we have heard of hydrocephalus as an alleged product of mental overstrain in early years; indeed, it is reasonable to conclude that, where a proclivity to tuberculosis exists, cerebral hyperæmia and the stuffy germ-laden atmosphere of certain school-rooms may conduce to tuber-

cular meningitis. To-day a more enlightened view obtains as to the treatment of infants; and the Educational Department now officially directs the fostering of "the spontaneous and coöperative activity of such scholars." The musical drill, kindergarten games, varied occupations, and other exercises now so much in vogue in infant schools, are no doubt extremely beneficial, and with sanitary safeguards the infants in our elementary schools are better off than they would be at home. Although precocious children are sometimes injured by being pushed into prominence it is not in the infant schools that we shall often meet with instances of overstrain. Nor is there nowadays, I think, so much evidence of over-pressure in elementary schools for boys and girls as was noticed some twelve years ago by our distinguished *confrère*, Sir James Crichton Browne. At that time he proved to his own satisfaction (if not to that of the Education Department) that more than one-third of the children attending elementary schools in London suffered from habitual headache (52·5 of the girls and 40·5 of the boys). He argued, moreover, from the increased prevalence of nervous disease in children—and he cited in support of his argument the increase since the passing of the Education Act in the juvenile mortality from encephalitis, from diabetes, from kidney and rheumatic diseases (claiming these affections as "diseases with marked nervous affinities")—and from the frequency with which he had met with chorea, with stammering, and with neuralgia in school children examined, that over-pressure certainly existed in connexion with compulsory education in elementary schools. In those days it would seem to have affected most severely the backward children, classified by Sir James Crichton Browne as either "dull, starved, or delicate," the code requirements of that date conducing to the whipping up as far as possible of all children to definite age standards. Happily grants are no longer made on the percentage of passes in standards arranged according to age, but after examination of the scholars by sample. Her Majesty's Inspectors are also authorised to ask the teacher to select a few of the best children for examination in the several subjects, so that the tendency now is not so much to press unduly the dull children as to work up the brighter children to a point that shall dazzle the inspector. Unfortunately, bright, precocious children are not unfrequently the offspring of a neurotic stock, and it is just these that are likely to break down under emotional excitement and the

pressure of an examination in prospect. From all I have been able to gather from teachers and from the children's hospitals in London it would seem that it is this class that nowadays furnish cases of school headache, of chorea, and other nervous affections, more particularly about the periods of examination. In secondary education the incidence of over-pressure would seem to be more marked in the preparatory schools than in the public and other schools for senior boys. This is probably an instance of the "survival of the fittest," and there is much reason to fear that not a few promising boys, approaching the trying epoch of puberty, are sacrificed to the Moloch of competitive examination for entrance scholarships. I do not say that in schools for senior boys there is no over-pressure, but in the great public schools and others following their methods the tendency to brain-strain is counteracted by a goodly proportion of outdoor exercise and physical exertion in the way of games. Happily schools of the type of Dr. Blimber's, satirised by Dickens as "a great hothouse in which there was a forcing apparatus constantly at work, and mental green-peas were produced at Christmas and intellectual asparagus all the year round," are not now so common as formerly.

With regard, however, to secondary schools for girls I fear that it is impossible to speak with favour of the hygienic aspects of the system pursued in many of them. In fierce emulation of methods formerly designated "*propria quæ maribus*," some at least of the High Schools for Girls seem to have overlooked the physiological conditions and necessities of budding womanhood. It has been well remarked that "puberty with girls is a period of profound nervous and neuro-psychological import. Many a weak woman could, if she only knew, trace back her weakness to an overstrain at this period of life." It is most unfortunate that too often there is a tendency (for which parents equally with teachers are responsible) to subject to serious and exhausting study girls of from twelve to fifteen years of age, just at an epoch when they should have the minimum of school-room work and the maximum of out-door exercise and recreation. The rapid growth and development which occur at this period, and the physical changes concerned in the establishment of the menstrual function, constitute a drain upon the girl's organism, leaving little reserve of strength for arduous mental exertion. What, however, do we find is the actual curriculum of high school girls at this age? Four hours' almost continuous work in the morning

exclusive of extra subjects in the afternoon, with a minimum of from two to three hours' preparation in the after-part of the day. And to this is superadded time necessarily devoted to the practice of music and other feminine arts. Where, on a winter's day at least, are proper exercise and recreation to come in? The public school boy has at least two hours' compulsory play (usually in the open air) during the afternoons; it is the exception, I believe, at girls' high-schools to have anything so plebeian as a playground, and I know of one where a well-equipped gymnasium exists but is never used for gymnastic exercises properly so-called. The morning interval, nominally of ten or fifteen minutes, is not usually spent in brisk exercise in the open as would be the case with boys, but in munching buns, or nibbling biscuits, or, at the best, in perambulating corridors with arms entwined around companions' waists after the manner of females. Is it to be wondered at that as the term proceeds the roses we have been used to associate with English maidens' cheeks gradually fade and signs of nervous exhaustion show themselves? Dr. W. S. Playfair remarked in a paper² read at the last annual meeting of the British Medical Association that some high school mistresses seem to hold the view that in relation to education the menstrual function may be ignored; and he gave an instance in which the head of one of the colleges for girls had written to the medical father of a broken-down pupil saying that they—i.e., the college authorities—considered that "the menstrual function was not of consequence, and that when it was in abeyance for a time it came all right afterwards when the girls left school"—a sentiment rather reminding one of the story of King Canute and the flowing tide!

In these three points then—(1) excessive hours of study, especially during spurts of growth and development; (2) deficiency of systematic out-door exercise and recreation; and (3) disregard of physiological functions differentiating the capacity for work at certain times of girls as compared with boys—I think the high school system needs amendment. In Women's Colleges of the type of Girton, Newnham, and the Royal Holloway there is more elasticity in the curriculum and a certain safeguard against over-pressure in the way of out-door sports. Even here, however, there is risk in the frequently recurring examinations, which are taken more keenly and conscientiously by young women than by young

² Brit. Med. Jour., Dec. 7th, 1895, p. 1408,

men of corresponding age; and with those of bad heredity especially there is a tendency to break down under the strain of competition. During the last year I have had under my observation the case of a girl aged nineteen, a student at a women's college, whose health completely gave way under pressure of the Christmas "trials" (as the terminal examinations are appropriately called) which unfortunately coincided with a menstrual period, and the patient being of neurotic tendency developed decided symptoms of nervous exhaustion.

We may now briefly consider the etiological factors of mental overstrain. First and foremost come a neurotic family history and predisposition to tubercle. So far as I have seen, signs of overpressure are rarely met with except when there is such morbid heredity, whether in elementary or in secondary schools. Secondly, malnutrition. In elementary schools there is no doubt that over-pressure often means under-feeding, and even with scholars of the better social grades emaciation consequent on shirking of meals predisposes to mental breakdown. So, as Burns's grace expresses it,

"Some hae meat that canna eat
And some wad eat that want it."

Thirdly, in the female sex, disorders of the menstrual function causing irritability and deficient powers of application. The influence of pernicious practices during the period of sexual development in the case of boys (and, indeed, with both sexes) must not be overlooked. Finally, with one or other of these predisposing factors we have the exciting influence of over-stimulation of brain cells resulting in subsequent exhaustion.

Amongst symptoms noticed we may specify the following. In young children a wary, preternaturally old look, to which the furrowed forehead, knitted brow, bagginess around the eyes, and sallow complexion all contribute. A general fidgetiness and irritability—sometimes muscular twitchings especially seen about the angles of the mouth—are noticed; and there is a general want of tone and balance about the muscular system, so that the hand when extended assumes a feeble pose and we may often see or feel finger twitches. In more severe cases actual jactitations of the limbs occur and the symptoms pass, especially with girls, into well-marked chorea. Headache is frequent and an habitual attitude is with the hand pressed against the brows; sleep is, as a rule, disturbed. With young children transient nocturnal hyper-

pyrexia is not infrequent, and night terrors sometimes occur. In some cases the tongue and lips are tremulous and speech is stammering. There is, as a rule, evidence of digestive disorder such as foul tongue and foetid breath; often we find a distaste for wholesome food, sometimes a perverted appetite, and an over-fondness for sweets. In pubescent boys and girls the neurasthenic symptoms tend to be more marked, such as incapacity for sustained attention (aprosexia), feebleness of memory, a tendency to answer exactly opposite to what is known to be correct (heterophemia), neuralgia, and (in girls) hysteria, sleeplessness or sopor, a want of pluck and general apathy. These symptoms are often associated with such physical signs as a sallow earthy complexion, anæmia, constipation, and what has been designated "anorexia scholastica." Aversion to solid food in the early part of the day is a frequent symptom, with a tendency to substitute nerve-titillating tea for more nourishing diet, and (as we have seen) it is not only from want, but frequently from want of appetite, that over-pressed children go to school minus their breakfast. I have myself had the opportunity of watching a high school girl, naturally of good physical as well as mental development, whose morning appetite, vigorous at the beginning of term, becomes small by degrees and miserably less as work presses and the examination period approaches. And, on inquiry as to the causes of breakdown of the student at the women's college referred to, I found that, though the principal meals were served in hall, the more studious were apt to shirk the solid viands and whip up their flagging powers with tea, made (*ad lib.*) in their own rooms.

A few words on prevention and treatment must close this paper. As regards prevention much rests with the parents themselves, who are but too apt to shirk responsibility and throw all blame upon the teachers. The poorer classes have indeed but little option as to the sort of education to which they will subject their children, the Education Department acting the part of Providence in prescribing the curriculum. But it has not always been a wise Providence, and its decrees might have been at times more judicious had it been able to avail itself of the assistance of a competent medical adviser. It is a hopeful sign that many of the larger School-boards have appointed medical officers, and as their opportunities of influence increase we may look for an improvement not only in the hygiene of schools but of educational systems. Parents of poor children should, however, themselves make

a vigorous stand against home lessons and undue detention, the most common causes of over-pressure in elementary schools. As regards secondary schools, parents have more in their own hands. It is indeed hard to resist the fashion of the day, but it is clearly the duty of medical men to protest against anti-physiological practices in schemes of education. Parents who know or who are advised that their children are of unstable nervous temperament must beware of the dangerous strain of competitive examinations in such cases, especially at critical epochs of development. Much may be done by favourably regulating the home environment of children attending day schools in the way of punctuality at mealtimes, insistence on sufficient out-door exercise and ample hours of rest, a point being made of going to bed early. Of course, with overstrain as everything else, the rule of action should be "*obsta principiis*," and warning signals, however slight, should not be disregarded.

The condition precedent to successful treatment is naturally the withdrawal of the pupil from conditions known to be injurious, even at the loss of a term's schooling. A term's brain rest is not always time wasted, and to wait for the full development of threatening symptoms is fatuous policy. The late Dr. Octavius Sturges gave (in a paper read at the International Congress of Hygiene, 1891, vol. x., p. 20) the pitiable history of five cases of what he designates as "school-bred chorea." These poor children having been kept with their "noses to the grindstone" in spite of morbid restlessness, the significance of which was not appreciated by the teachers, "were only removed from school when St. Vitus's dance had developed so fully as to render them absolutely incapable of school-work and sometimes even of speech." Had those in charge been aware of the "hand-test," so easily applied, timely relief might have been given and the worst symptoms averted. As to treatment, one may say in a general way, use all means that will invigorate the body and cheer the mind. "A change" is often recommended, but let it be a change with an object, for nothing is worse in mental overstrain than inactivity and leisure for morbid introspection. Physical exercise in some congenial form and taken in moderation (e g., bicycling, boating, golf, tennis, or skating) may be of great value in restoring the balance of the circulation. A course of light literature is frequently of advantage, and an interest in artistic or manual work, such as painting or wood carving, or, what is still better, some outdoor occupation, such as gardening, may be of signal service. Time

does not permit of the discussion of drug treatment (the indications for which will vary in different cases); but, as a rule, it may be said that, having quickened the sluggish excretory functions by due purgation and broken bad habits of insomnia by a short sedative course of sulphonal or paraldehyde, ferruginous and nervine tonics are of value. Nutrition being often much impaired, a course of massage and feeding on the Weir Mitchell system may be of service in extreme cases, and as a rule the administration of cod-liver oil, maltine, &c., is beneficial as conducing to that comfortable condition of body which, according to Dr. Clouston and other evangelists of the "gospel of fatness" is distinctly favourable to mental contentment.

Ancaster House, Richmond Hill, Surrey.

